

Helm Bay Gold Belt, Southeast Alaska

Avalon Development Corporation Summary Report 2015

- 17 Historic Prospects - 10 km Strike Length – 10,000 oz pre-WWII Production
- No Modern Exploration and No Drilling Conducted in the Belt
- Structurally Controlled Greenstone Hosted High Grade Mesothermal Gold Mineralization
- Tidewater Access With Year Round Work Season
- Located 35 km From Ketchikan, Alaska, a Regional Infrastructure Hub
- No Underlying Ownership Liabilities, Federal Land Open to Mineral Entry

Known mineralization in the Helm Bay Gold Belt encompasses an area approximately 10 km NW-SE by 3 km NE-SW along the southwestern shore of Helm Bay on the southern end of the Cleveland Peninsula, Southeast Alaska.

Gold mineralization consists of free gold hosted in quartz pyrite fracture fill veins and gold filling fractures in pyrite hosted in the adjacent Mesozoic schist of the Gravina terrane. Auriferous veins fill the generally N-S trending faults in pinch and swell geometries resulting in high grade chutes along dilation jogs. Veins thicken at the intersections of N-S faults and conjugate faults. In addition, auriferous quartz stockwork veining has been uncovered at multiple prospects (Figure 1). Recent sampling by the U.S. Bureau of Mines (BOM, Maas, 1995) has quantified the high grade nature of gold mineralization in this area (Table 1). BOM sampling indicates that the Au grade in the pyrite altered schist adjacent to the quartz veining can be greater than the Au grade in the quartz vein itself (Maas, 1995, table 24).



Figure 1. Quartz Stockwork (Arwick Zone) at the Wixon-Bear Lake Prospect: A 2.4 m continuous chip channel from this stockwork zone contained 80.42 ppm Au.

Gold mineralization at Helm Bay is controlled by faulting and fracturing related to the Cretaceous obduction of the Alexander terrane onto the Gravina and Taku terranes, and the subsequent post accretionary collapse of this composite super terrane. BOM fluid inclusion work returned homogenization temperatures between 125°C and 325°C, consistent with a mesothermal style of mineralization (Maas, 1995). The mineralizing fluids may have been generated during regional greenschist grade metamorphism.

Table 1: Summary of historic prospects in the Helm Bay Gold Belt. Map numbers correspond to Figure 2. Many of the old workings were still open in 1995, which allowed the BOM to conduct comprehensive sampling of the prospects.

Map #	Occurrence Name	Historic Au Production	Grade (ppm)	Production Dates	Workings	High Grade BOM (Au ppm)	Vein Strike	Vein Dip
1	Wixion/Bear Lake	?	?	1931	Glory Hole	4.69	315-330, 030	
2	Sleeping Beauty	?	17	1936	Adit, Trenches, Pits (4)	13.61	315-330	80W
3	Portland	80 oz	24	1921-1941	Shaft, Adit, Trenches (4)	54.03	320	
4	Freegold	?	4.8	1903-1935	Adit (3), Trenches (2), Cut (2)	17.31	340-350	35-45E
5	Lakeview			1898-1914	Trench, Pit (9)	12.72		
6	Upper Gold Standard	4983 oz	5	1897-1942	Adit (2), Shaft, Pit	23.14	334-340	85E
7	Lower Gold Standard	4983 oz	5	1897-1942	Adit, Gloy Hole (2)	44.40	334-340	
8	Helm Bay Lone Jack			early 1900's	Adit	7.59	015	63E
9	Snowstorm			early 1900's	Adit (2), Trench, Pit	9.69		
10	Last Chance			early 1900's	Adit	0.02		
11	Beulah			early 1900's	Adit, Trench, Pit (9)	3.30		
12	Puzzler			early 1900's	Adit, Trench, Pit	0.05	050	60E
13	Hoffman			early 1900's	Adit	2.64	355	85W
14	Alexandra			early 1900's	Adit	below detection	000	45W
15	Annie	254 oz		1900-1906	Shaft (2) & Adit (2)	99.94	330	
16	Gold Mountain				Adit (2)	2.25		
17	Novatney			1933-1952	Trench, Pit (2)	2.83	040	30W-90

Spatially, the 17 historic prospects group into four parcels: Bear Lake, Sleeping Beauty – Portland, Freegold – Lakeview – Gold Standard – Lone Jack – Snowstorm – Last Chance – Beulah and Annie – Gold Mountain – Novatney (Figure 2). Of these parcels the Freegold and Annie groups have received the greatest amount of development with the majority of production coming from the Gold Standard Mine.

The Gold Standard Mine produced approximately 10,000 oz gold during the 55 years of intermittent mining typical of small mines in the first half of the 20th century. The lower adit was still open in 1992 which allowed the BOM to sample the 436 meters of underground workings as well as the two glory holes. Continuous chip sampling of quartz veining and pyrite mineralized hanging wall schist returned a weighted average of 5.96 ppm Au over 6.5 m across veining, including 3 m of 11.60 ppm Au. Other notable chip channel intercepts from the underground workings include: 10.63, 10.83, 35.90, and 44.40 ppm Au all over 1.5 meter intervals. Underground workings are shallow, no more than 15 m below surface, providing significant opportunity to expand mineralization at depth.

The Freegold Mine does not have reliable production figures, but the 529 m of open workings returned numerous intervals of +1 ppm Au over 1-1.5 m. A select sample of pyrite rich mineralization contained 17.31 ppm Au. The workings are a series of cross cut tunnels designed to intercept the two veins exposed in open cuts on the property. A BOM property evaluation conducted in 1935 (Crerar) near the end of production, returned continuous chip assay values of 9.25 ppm Au over 7.3 m (wt avg) from the underground workings of the main ore body. Ore car samples from the 50 ft of exposed vein averaged 4.8 ppm Au. Surface sampling conducted over the high grade Bugge Vein returned values of 39 ppm over 1 m, and a select sample of 395 ppm Au. Based on his sampling and the dimensions of the exposed vein, Crerar estimated that the North ore body contains 65,000 tons at 0.14 oz, or 9300 oz Au from surface to the workings 100 feet below. There has been no exploration conducted below the historic workings and the strike extent of mineralization is unknown. Thus far three auriferous veins have been discovered on the property, indicating the potential for a vein swarm.

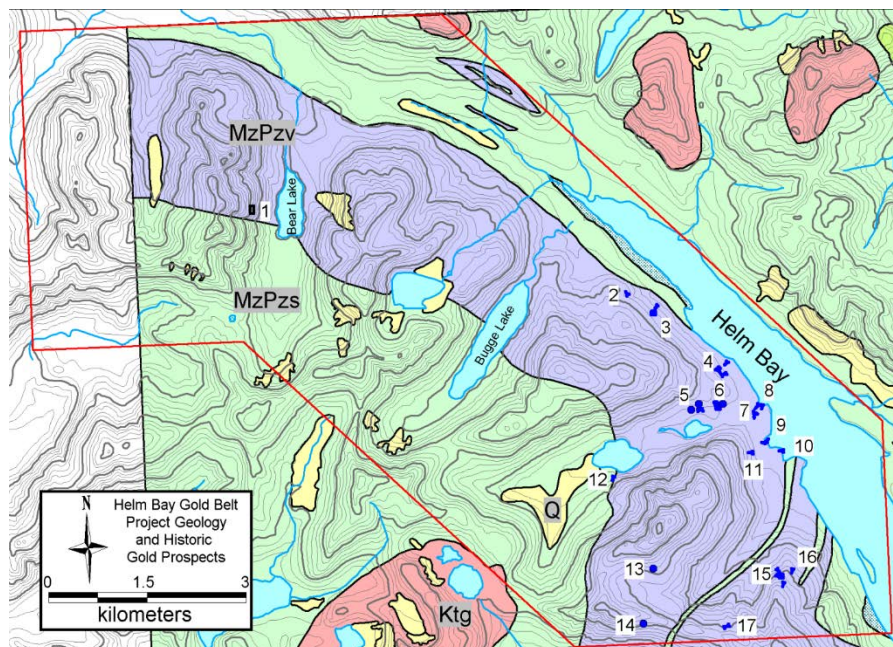


Figure 2: Geologic map of the Helm Bay area. All of the historic gold prospects are located in the metavolcanic sequence. Vein orientations mimic foliation and layering within the greenstone, failure occurred along the foliation and bedding planes.

At the Annie prospect there is 250 m of open underground workings. BOM continuous chip sampling returned a weighted average of 6.72ppm Au over 5.1 m. Sampling conducted in 1975 (Munoz) across

mineralization over 18 m of exposed vein returned similar values of 5.27 ppm over 1.8 m, 10.22 ppm over 1.5 m, and 5.28 ppm over 1.8 m. Underground workings are shallow and mineralization is open in all directions, akin to the other prospects.

Previous claim holders at the Bear Lake prospect hired Fairbanks Exploration Inc. (Freeman, 1987) to sample and evaluate several open cuts on the west side of Bear Lake. Continuous chip sampling over the Arwick Zone quartz stockwork (Figure 1) returned 27.69 ppm Au over 9 m, including 3 m of 80.42 ppm Au. Mineralization is open in all directions.

Between the Bear Lake and Sleeping Beauty prospects there are areas of iron staining exposed on the steep hillsides near Bugge Lake, and the unnamed lake to the northwest. This iron staining is coincident with the trend of foliation and auriferous veining found to the northwest and southeast. If veining in the Helm Bay Gold Belt is similar to that of the Juneau gold belt (A-J Mine, Treadwell Mine) then veining may be continuous along the controlling faults. Therefore the southwest shore of Helm Bay potentially hosts additional high grade gold veins, chutes, and stockworks.

The Helm Bay Gold Belt has not been explored as a consolidated property. Previous exploration efforts were concentrated on local showings and prospects controlled by numerous unrelated individuals. It has also not been explored with modern equipment and drilling. Based on the similar character and attitude of mineralization throughout the numerous historic prospects, it is clear that this is a large mineralizing system and that unexplored ground between known occurrences is highly prospective for additional auriferous veining. The extent of known mineralization and the amount of historic surface and underground workings provide a focus for near-term exploration. By concentrating initial exploration on extending known veins an area wide program would be well constrained with initial success steering further exploration.

An initial exploration program should focus on the four parcels described on page 3. This program would consist of claim staking, GPS location of historic workings/veining, mapping, initial sampling, establishment of access routes, and logistical feasibility. This initial program could be conducted on foot and using small boats to maneuver around Helm Bay. There is a Forest Service maintained cabin and dock near the south end of the property which could be rented as a base for operations. This cabin could easily support a crew of 4-6 for a 2-4 week field program. A crew of 4-6 would be able to stake the approximately 100 federal mineral claims needed to cover the four most prospective parcels (Figure 3). This crew also would be able to conduct the initial mapping and sampling needed for due diligence and to guide future surface exploration and drilling.

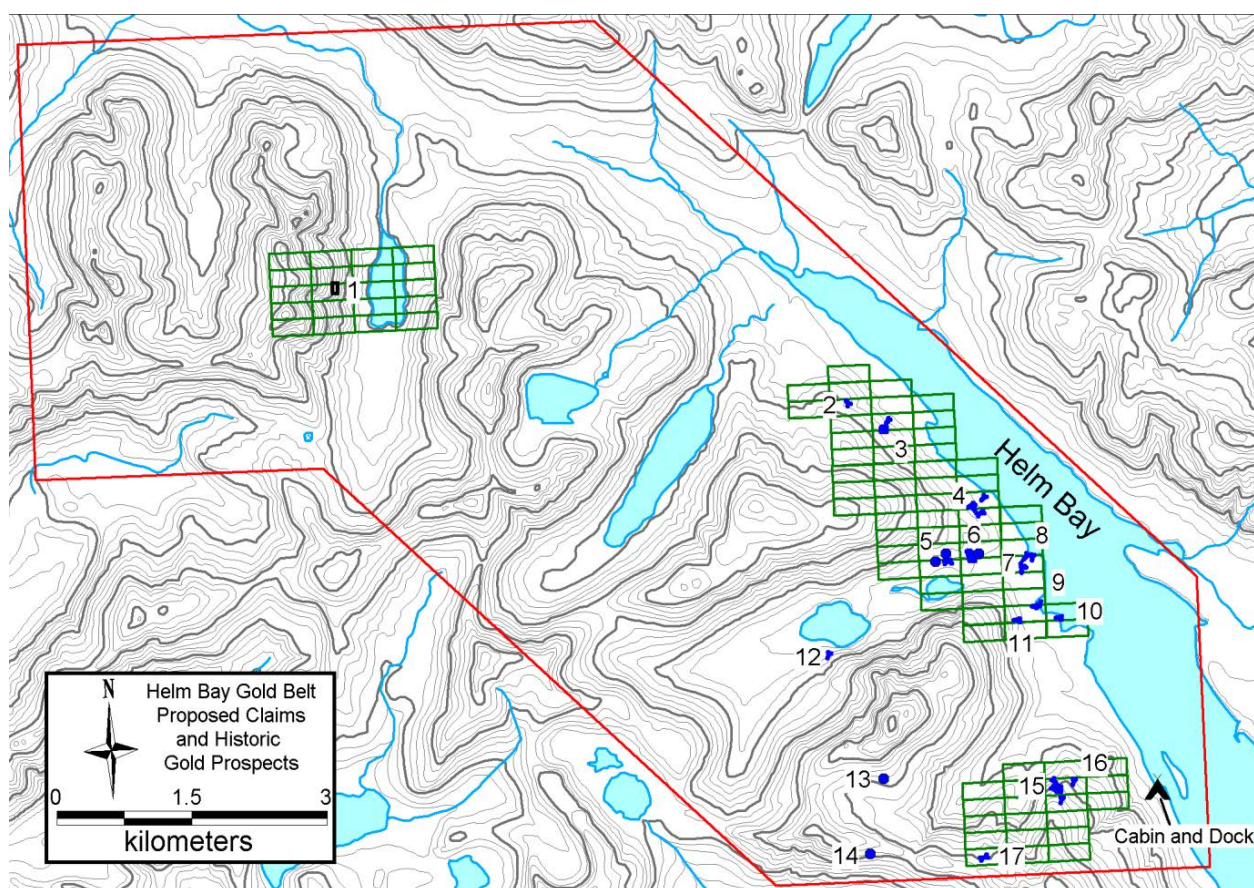


Figure 3: Helm Bay area proposed Federal mining claims.

The tide water access to the property allows for the entire project to be mobilized and supplied by small watercraft. The cost of this program would be significantly lower than an air supported program. Additionally, the rental of the public use cabin simplifies field logistics with significant cost savings. The use of small boats to explore the property will allow crews to move between prospects quickly and explore tidal exposures of bedrock.

The mild climate at sea level and low elevations in this area of Alaska allow for a year round field season. Although wet, windy weather is common between October and May, it does not preclude any exploration activities proposed in this program. Significant cost and time

savings may be realized by conducting this program in the off-season, as personnel are readily available, transportation is cheaper, and assay result return times will be quicker.

Avalon Development Corporation (ADC) is well situated to implement the program described above. ADC has over 20 years of experience in this region of SE Alaska, including work on the Arwick zone at Bear Lake prospect. The company has conducted exploration programs for gold, platinum, copper, and nickel, and has established a logistical network of contractors, personnel experienced in the wet weather and steep terrain, and a good working relationship with Forest Service permitting teams.

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